

PISCO®

Parallel Gripper (3-Finger)

Operating Instruction

HIR0097-01

Thank you for purchasing PISCO product.

Please be sure to read this User's Manual before using this item in order to make sure the safety. Please keep this manual handy with care, so that you can refer to it whenever necessary.

Common Safety Instructions for PISCO products are listed in our product catalog. Please read it before using this product.

Specifications

Model code	CHT34-D	CHT44-D
Acting type	Double acting	
Cylinder bore	34mm	44mm
Finger stroke	4mm (Radial 8mm)	6mm (Radial 12mm)
Effective gripping force (※) (at 0.6MPa)	O.D. 97N I. D. 114N	198N 209N
Fluid medium	Air	
Operating pressure range	0.2 ~ 0.8MPa	
Operating temp. range	5 ~ 80°C (No freezing)	
Lubrication	Not required	
Repeat accuracy	±0.01mm	
Weight	220g	500g

※) Values at gripping length: 40mm.

⚠ Safety instruction

- The gripper has a built-in magnet. Attention is needed in case using the gripper in the environment where magnetic material should be avoided (such as piled-up iron powder, peripheral sensors or works).
- Refer to the tightening torque in 【Handling of product】 when installing a gripper. Improper tightening may cause malfunctions, shorten the product life time, or cause loosening.
- Install a gripper on flat surface. If the surface on which the gripper is installed is not flat, the gripper cylinder may get deformed.
- See the table below for maximum allowable moment and allowable load (Fig. 1) on fingers.

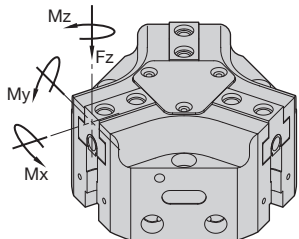
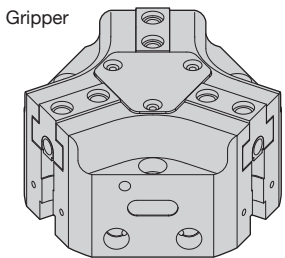


Fig. 1

Model code	Mx max. (N·m)	My max. (N·m)	Mz max. (N·m)	Fz max. (N)
CHT34-D	15	15	8	700
CHT44-D	50	45	35	1,200

Gripper includes



Accessories

	O-ring (x2)		Plug (x2)		Pin (x2)
	Centering sleeve (x6)		Proximity sensor fixing parts (x2)		

Product handling

1. Installation of gripper

- Use tapped fixing holes on a gripper to install it and tighten the screws with the tightening torque shown below.
- Refer to the dimensional drawings for the hole pitch.

Screw size	Tightening torque (N·m)
M4	1.5
M5	2.9
M6	5.2

2. Installation of attachment

- Use the centering sleeve included to position the attachment.
- Refer to the dimensions in Fig. 2 and process the contacting part on the attachment.
- Use hexagon socket head bolt, etc. to install an attachment and tighten the bolts with the tightening torque shown below.

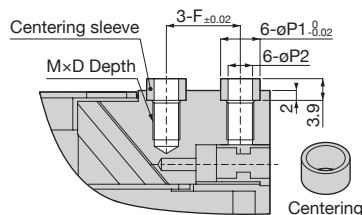


Fig. 2

Screw size	Tightening torque (N·m)
M3	0.6
M4	1.5

Model code	M	D	φP1	φP2	F
CHT34-D	6-M3×0.5	5	5	3	8
CHT44-D	6-M4×0.7	6	6	4	12

Unit: mm

3. Piping

- Install speed controllers to 2 air supply ports (Fig. 3) with the tightening torque shown below.
- Use PISCO brand speed controller.

M5 (Air supply port B (Opening gripper))

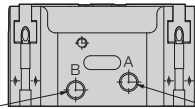


Fig. 3

M5 (Air supply port A (Closing gripper))

Model code	Tightening torque (N·m)
CHT34-D	1 ~ 1.5
CHT44-D	

4. Direct piping

- By using a provided O-ring, direct air supply from a customer-made connecting flange is possible. Refer to the dimensions in Fig. 4 and process a connecting flange. Surface roughness of the sealing surface must be Rz6.3 or less, when processing the flange.

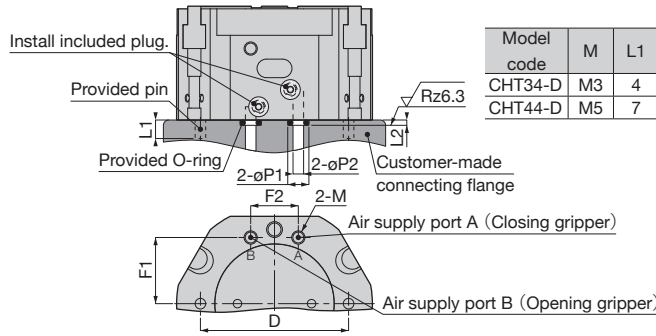


Fig. 4

Specifications of sensor switch

Model code	SEM-GDV-□	SEM-GNV-□	SEM-GPV-□	SEM-FD-□	SEM-FDV-□	SEM-FN-□	SEM-FNV-□	SEM-FP-□	SEM-FPV-□
Wiring type	Non contact, 2 wires	Non contact, 2 wires	Non contact, 3 wires	Non contact, 2 wires	Non contact, 2 wires	Non contact, 3 wires	Non contact, 3 wires	Non contact, 3 wires	Non contact, 3 wires
Output type	—	NPN output	PNP output	—	—	NPN output	PNP output	PNP output	PNP output
Cable direction	Top		Side	Top	Side	Top	Side	Top	Top
Load voltage	DC10 ~ 28V		DC5 ~ 28V		DC5 ~ 30V		DC5 ~ 30V		
Load current	4 ~ 20mA max.		50mA max.		80mA max.		50mA max.	80mA max.	
Current consumption	—	10mA max. (DC24V)	—	—	10mA max. (DC24V)	6mA max. (DC24V)	10mA max. (DC24V)	6mA max. (DC24V)	6mA max. (DC24V)
Internal voltage drop	3.5V max.	0.5V max. (at 50mA)	3.5V max.	—	0.5V max. (at 50mA)	—	—	—	—
Leakage Current	0.8mA max.	0.01mA max.	0.1mA max.	—	0.01mA max.	—	—	—	—
Indicator	ON - Red LED indicator turns on.								
Response time	1msec max.								
Operating temp. range	-10 ~ 70°C (No freezing)								
Impact resistance	490m/s ² (Non-repeated)								
Vibration resistance	88.3m/s ² (Total amplitude 1.5mm, 10-55Hz)								
Protective structure	IP67								
Surge protection circuit	Surge protection		Surge protection, Reverse connection prevention						
Weight	12g (Lead wire: 1,000mm)		13g (Lead wire: 1,000mm)						
	23g (Lead wire: 2,000mm)		24g (Lead wire: 2,000mm)						

⚠ Safety instruction

- Connect the lead wires according to their color. Incorrect wiring will cause damage to the sensor switch.
- Do not give a strong tensile force or extreme bending to the lead wire.
- To avoid malfunction, keep the sensor away from strong external magnetic fields.
- Avoid using the sensor switch in environments where chemicals are present.
- When using multiple (2 or more) 2 wire type sensors by AND (series) connection, load failure may occur due to the drop of circuit voltage with the number of sensors.
- When connecting 2 wire type sensors by OR (parallel) connection, load failure may occur due to the increased current leakage with the number of sensors.

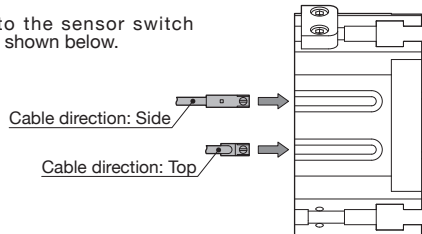
Sensor switch handling

1. Sensor switch setting example and installation position setting method

- The sensor switch can be used in a variety of ways depending on the combination of installing quantity and detection position.

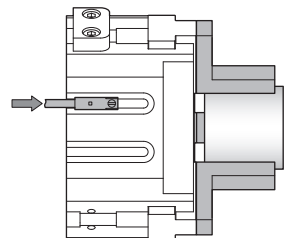
〈Installation〉

Insert the sensor switch into the sensor switch installing slot from the direction shown below.

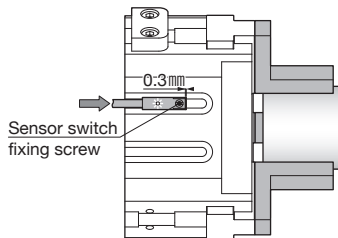


〈Setting ①〉

- To confirm the gripping of outside of work-piece

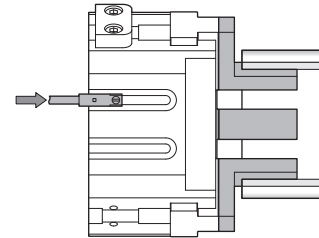


A LED turns on as sliding the sensor switch along the slot toward arrowed direction.

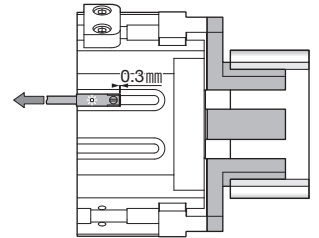


Slide the sensor switch 0.3mm further toward arrowed direction from the position the LED turns on, and fix it with a sensor switch fixing screw. (Tightening torque: 0.1~0.2N·m)

2. To confirm the gripping of inside of work-piece



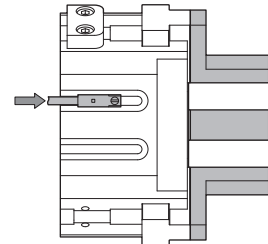
A LED turns on as sliding the sensor switch along the slot toward arrowed direction. Slide it further until LED turns off.



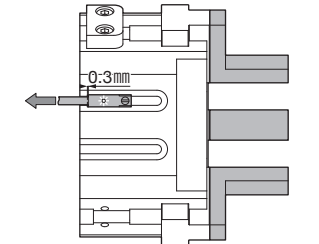
Slide back the sensor switch toward arrowed direction until LED turns on again. Slide the sensor switch 0.3mm further toward arrowed direction from the position the LED turns on, and fix it with a sensor switch fixing screw. (Tightening torque: 0.1~0.2N·m)

〈Setting ②〉

- To confirm the gripper is fully open



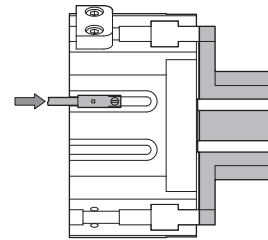
A LED turns on as sliding the sensor switch along the slot toward arrowed direction. Slide it further until LED turns off.



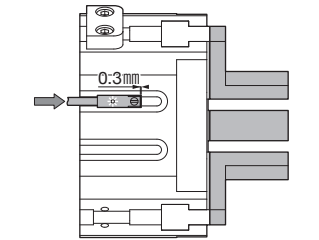
Slide back the sensor switch toward arrowed direction until LED turns on again. Slide the sensor switch 0.3mm further toward arrowed direction from the position the LED turns on, and fix it with a sensor switch fixing screw. (Tightening torque: 0.1~0.2N·m)

〈Setting ③〉

- To confirm the work-piece is not gripped



A LED turns on as sliding the sensor switch along the slot toward arrowed direction.



Slide the sensor switch 0.3mm further toward arrowed direction from the position the LED turns on, and fix it with a sensor switch fixing screw. (Tightening torque: 0.1~0.2N·m)

2. Installation of proximity sensor

- A gripper has 2 slots for proximity sensor. (See Fig. 5.) See the table below for installable sensor size.
- Proximity sensor is not included in the sensor option.

Model code	Installable sensor size
CHT34-D	Cylindrical type φ3mm
CHT44-D	Screw type M8

Hexagon socket head bolt provided with the gripper (M3×0.5)
(Tightening torque: 0.5N·m)

Proximity sensor fixing parts provided with the gripper

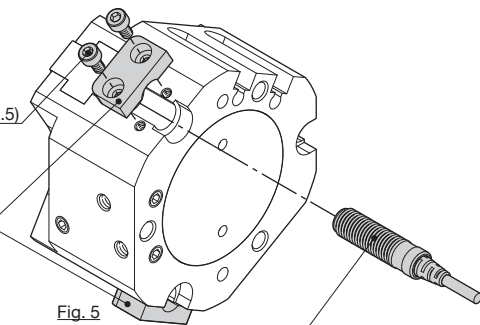
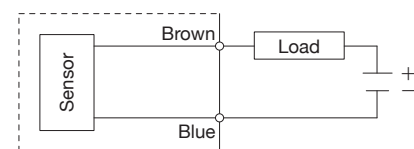


Fig. 5

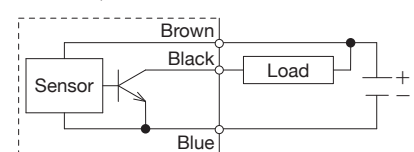
Proximity sensor (Sold separately)

Internal circuit and wiring diagrams

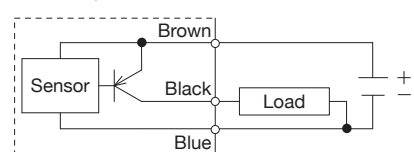
SEM-GDV, SEM-FD□



SEM-GNV, SEM-FN□



SEM-GPV, SEM-FP□



※) Contact us for any other details.

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